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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/516,346	11/30/2004	Yoshie Nishikawa	36856.1302	9508

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EXAMINER

MAI, ANH T

ART UNIT

PAPER NUMBER

2832

DATE MAILED: 03/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/516,346	<b>Applicant(s)</b> NISHIKAWA ET AL.	
	<b>Examiner</b> Anh T. Mai	<b>Art Unit</b> 2832	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-28 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                                                            |                                                                                         |
|--------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                                       | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>11/04</u> . | 6) <input type="checkbox"/> Other: ____.                                                |

## DETAILED ACTION

### *Claim Rejections - 35 U.S.C. § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 5-6, 8-15, 17-19, 21-26, 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takagi et al [5726611] in view of Harpham [5825259].

Takagi discloses:

- a choke coil having first, second, third, fourth windings T1, T2, Ti, Tj and a magnetic core 250 constitutes a closed magnetic path in which the windings are wound [figure 25a];
- the first and second windings are wound in the same direction so that magnetic generates in the core are mutually strengthen when an in-phase noise current flows;
- the third and fourth windings are wound in the same direction so that magnetic generates in the core are mutually strengthen when an in-phase noise current flows;

Takagi discloses the claimed invention except for the signal lines which differential transmission communication is performed and on which a power supply current is sent out/return. Harpham discloses differential transmission line wherein the double-ended signal line is which each signal path has a differential data signal imposed upon it [col 3, lines 40-50].

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use differential transmission signal lines as taught by Harpham to connect to the windings as

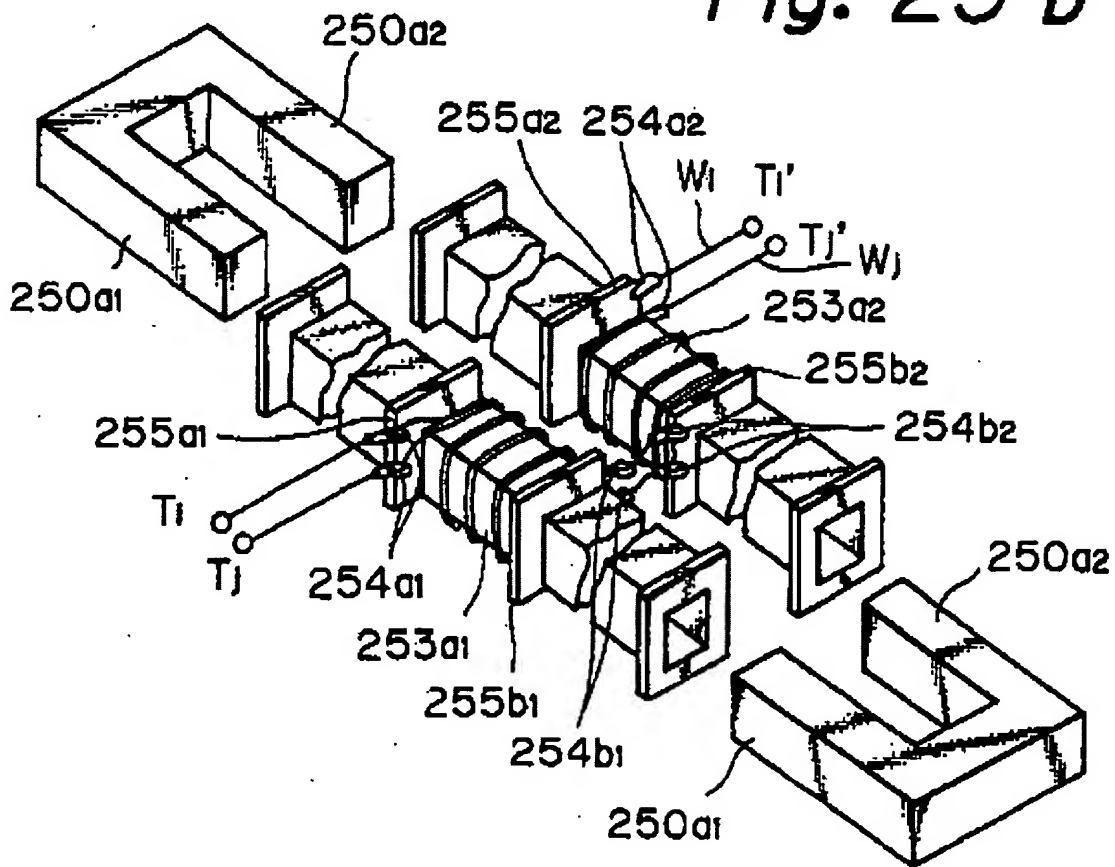
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disclosed by Takagi. The motivation would have been to have differential inputs to the wires.

Therefore, it would have been obvious to combine Harpham with Takagi.

As in claims 6, 9, 14, 19 Takagi discloses the first bobbin 253<sub>a1</sub> and second bobbin 253<sub>a2</sub> including the flange portion at both ends of the cylindrical body portion thereof, and outer periphery of the flange portion 255<sub>a1</sub> of the first bobbin contact with outer periphery of outer flange portion 255<sub>a2</sub> of the second bobbin; see fig. 25b.

*Fig. 25 b*



As in claims 8, 21 Takagi discloses the magnetic core of 2 U-shaped cores 250<sub>a2</sub>;

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As in claims 10, 22, Takagi discloses the flange portions include pairs of lead terminals 254<sub>b12</sub>, 254<sub>b1</sub>, connected the first, second, third, fourth windings and the bobbins are arranged so that the cylindrical body portions are parallel to each other;

As in claims 11-13 and 23-25, Takagi discloses the number of turns is the same therefore strengthen the magnetic fluxes [col 9, line 60 to col 10, line 6].

Around the first core arms 250<sub>a1</sub> and 250<sub>a2</sub>, one pair or more pairs of wires 251 are wound to form a plurality of coils which will be connected to respective wires of a balanced multi-wired telecommunication line (not shown). In FIGS. 25a and 25b and also in the following figures, only a typical pair or pairs of coiled wires are illustrated to simplify an understanding of the winding structure. A pair of wires are, in FIGS. 25a and 25b, illustrated by W<sub>i</sub> and W<sub>j</sub> for example. Each of the pairs (W<sub>i</sub> and W<sub>j</sub>) is wound around one of the first core arms 250<sub>a1</sub> in a turning direction and then around the other one of the first core arms 250<sub>a2</sub> in the opposite turning direction so as to produce magnetic fluxes in the closed core 250 flowing toward the same direction when a common-mode current flows through the wires.

The coils have signal input ends (input terminals) T<sub>1</sub>, T<sub>2</sub>, . . . , T<sub>p</sub>, T<sub>p</sub>, . . . , T<sub>m</sub>, T<sub>n</sub> at the outside of the one first core arm 250<sub>a1</sub> and signal output ends (output terminal) T<sub>1</sub>', T<sub>2</sub>', . . . , T<sub>i</sub>', T<sub>j</sub>', . . . , T<sub>m</sub>', T<sub>n</sub>' at the opposite outside of the other first core arm 250<sub>a2</sub>. The wires run in a one-way direction from the signal input ends T<sub>1</sub>, T<sub>2</sub>, . . . , T<sub>p</sub>, T<sub>p</sub>, . . . , T<sub>m</sub>, T<sub>n</sub> at the input side first core arm 250<sub>a1</sub> to the signal output ends T<sub>1</sub>', T<sub>2</sub>', . . . , T<sub>m</sub>', T<sub>n</sub>' at the output side first core arm 250<sub>a2</sub>. Namely, each pair of the wires for example pair wires W<sub>i</sub> and W<sub>j</sub> is started from the signal input ends T<sub>i</sub> and T<sub>j</sub>, wound in a distributed fashion with a space between its neighbor windings along the input side first core arm 250<sub>a1</sub> toward a first axial direction, introduced to the output side first core arm 250<sub>a2</sub>, wound in distributed with a space between its neighbor windings along this core arm 250<sub>a2</sub> toward a second axial direction opposite to the first axial direction, and arrived at the signal output ends T<sub>i</sub>' and T<sub>j</sub>'.

The wires of each pair are closely positioned with respect to each other. Namely, in this embodiment, the wires of each pair are constituted by parallel pair wires contacted with each other.

As in claims 15, 26 figure 25B of Takagi shows the core members defined a closed magnetic path in which leading ends of the leg portion abut against each other.

As in claims 17, 28 the claims are rejected because IEEE802.3af is a standard operational guideline and not given any patentable weight.

As in claims 18, Takagi also discloses the first winding is wound closely to the second winding on the first bobbin and second winding is wound closely to first winding as shown in figures 8a-c; col 9, lines 4-17.

**FIGS. 8a to 8c show sectional views for illustrating winding structures of a pair of wires wound around the core 5 in the distributed winding section Sb(Sc) shown in FIG. 5.**

**As shown in these figures, the wires of each pair are closely positioned in parallel and contacted with each other.**

**In the structure of FIG. 8a, the contacted wires pair is wound around the core 50a in a single layer so that the wound pair runs in a one-way direction along the core 50a (one-way winding) in a sequential order as  $W_1, W_2, \dots, W_n$  with a space  $h$  between the neighbor windings by inserting a part such as a spacer (not shown). This single layer one-way winding structure can suppress an increase of the stray capacitances  $C_{s1}$  and  $C_{s2}$  and also can decrease the leakage inductances between the coiled pairs.**

2. Claims 16 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takagi in view of Harpham as applied to claims 15 and 26 above, and further in view of Yamaguchi et al. [5831505].

Takagi in view of Harpham discloses the claimed invention except for a fitting plate to bring abutting surfaces of the core members into close contact with each other. Yamaguchi discloses a fitting plate 8 having a U-shaped configuration and arranged to bring abutting surfaces of the core 3,4 to each other. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a U-shaped fitting plate as taught by Yamaguchi to hold the core members as disclosed by Takagi in view of Harpham. The motivation would have been to fasten the core members together.

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3: Claims 7 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takagi in view of Harpham as applied to claim 5 and 18 above, and further in view of Timashov et al. [6900717].

Takagi in view of Harpham discloses the claimed invention except for a metal member placing between the first bobbin and second bobbin. Timashov discloses a metal plate 26 placing between bobbins 20, 16 [figures 2, 5-6]. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a metal plate as taught by Timashov placed between the bobbins as disclosed by Takagi in view of Harpham. The motivation would have been to provide terminal connection for the windings.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anh T. Mai whose telephone number is 571-272-1995. The examiner can normally be reached on 5/4/9 Schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin Enad can be reached on 571-272-1990. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

030506

ANH MAI  
PRIMARY EXAMINER  
